The Spanish mine water policy and linked EU Directives

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Abstract

Impacts of mining on surface water and groundwater occur frequently in active and abandoned mines. Mine water pollution differs enough from other forms of water pollution to have specific regulatory requirements. Furthermore, having in mind that the impacts of mining in water resources occur not only at the different stages of the life cycle of the mine, but also after its closure, the establishment of legal mechanisms for the regulation and control of mine waters is a necessary step in order to avoid pollution from mine waters. As there is a lack of a specific legislation about mine water both at national and European level, then, the current applicable legislation is both mining and water legislation. An in-depth review of the current Spanish policy applicable to mine water, as well as administrations involved in mine water management and institutional setup is presented in this paper. The implications of the Framework Water Directive in mine water are considered from the point of view of the Spanish mining context. In the elaboration of this paper, the general comments from agents involved in the mine industry and key institutional actors that have participated in the three annual meetings held in 2001, 2002 and 2003 in Oviedo School of Mines (University of Oviedo) in the framework of ERMITE project ("Environmental regulation of mine waters in the European Union"), supported by the key action Sustainable Management and Quality of Water of the EC Framework 5, have been considered.

Key Words: Mine water, legislation, Spain

1. Introduction

Mining activities have existed in Spain since prehistoric times, but it can be said that mine water environmental problems began in the ninetieth and twentieth centuries. Since that time, mining operations were spread out in the country and some regions lived an intensive exploitation of its mineral resources. Nowadays, despite the crisis that affects the mining industry, it still plays an important role in the national economy. The mining production in the last years was about the 5% of the industrial Gross National Product (GNP) and about the 1% of the total GNP. These data give and idea of the real importance of the mining sector in Spain, despite it has suffered a strong decrease.

Mine waters can be considered part of the water cycle, but they are rarely treated as such in the regulatory frameworks. Recent large-scale contamination events such as the occurred in Aznalcóllar (Spain) in 1998 by failure of the tailings dam, have underlined the potential risks of water pollution by mining and the lack of an adequate specific legislative framework for mine water as well at national as at European level.

Impacts of mining on water resources, both surface and groundwater, can occur at various stages of the life cycle of the mine and after its closure. In the case of abandoned mines and/or spoil heaps, there is a lack of technical control in most cases, and most of the existing environmental problems associated to mine waters are mainly produced by old mining works and mine wastes facilities, which were improperly closed, as consequence of the lack of environmental legislation that in this matter.

S.S.I.H. (Hydrologic Information Automatic System) and S.A.I.C.A. (Water Quality Information Automatic System) networks supply data for surface water monitoring of the Spanish hydrographical basins. The groundwater is periodically sampled in points of a network controlled by the IGME (Spanish Geological and Mining Institute). These networks are not useful mine waters monitoring because of the long distance between stations. Then, data are not suitable for a correct monitoring at local scale in order to control and correct the pollution by mine waters at the source before its dilution in the catchment.

2. Institutions involved in mine water management

As consequence of the lack of a specific legislation for mine waters, the institutions and organisms that must be considered in relation to mine

waters management are those in charge of water issues and mine. Spain is a country constituted by seventeen Autonomous Communities, and the different competences in water issues and mine are distributed among the Central Administration of the State and the Autonomous Communities. The division of competences is different depending on the considered Autonomous Community (not all the Autonomous Communities have the same level of competences). Another Administration to be taken in consideration is the local governments. Then, there are three different Administrations with different types of competences in relation to mine waters: General Administration of the State, Autonomous Communities and Local Government. This leads to a distribution of competences between different Administrations, and different organisms and institutions inside these Administrations. The main matters in relation to mines and waters from mining operations, and the distribution of competences in relation to these matters between the different Administrations are summarized in Table 1.

Table 1. Distribution of competences between Administrations

Matter	Competences
Mining permits/Restoration Plan	Autonomous Communities
Water discharges and water concessions for use	General Administration of the State (River Basin organizations) Autonomous Communities
Accidental discharges	General Administration of the State (River Basin organizations) Autonomous Communities
Environmental Impact Assessment	General Administration of the State Autonomous Communities
Land Management	Autonomous Communities Local Governments
Activity licence	Local Governments

2.1. Mining Institutions

In the General Administration of the State, the Institution in charge of mining management and related operations is the Ministry of Industry, through the Directorate General for Energetic Policy and Mines. This is in charge of all mine issues at national level and it carries out the mining

policy of the government of the State. Nowadays most of the competences in relation to mines have been transferred to Autonomous Communities.

In the Autonomous Communities Administration, the Institution in relation to mines is the corresponding Consejería in charge of mine issues, which at regional level is the equivalent to a national Minister. At a regional scale, the organisation of the government can vary depending on the considered Autonomous Community, but in general it would follow the next scheme: a Consejería of Industry or equivalent, and depending on it a Directorate General in charge of Mining issues.

Finally, the basic law that regulates the local governments (Law 7/1985) attributes to municipalities the competence to protect the environment inside its territory. This protection must be considered as an executive activity complementing the State and Autonomous Community activity. The concrete activities regulated by municipalities in relation to mines are those of giving the necessary authorisations and permits: authorisation of activity, and licence of classified activities.

2.2. Water Institutions

In the General Administration of the State, the Institution in charge of the water management is the Minister of Environment, which carries out all the environmental policy of the government of the State. Depending on it there are several departments that assume the control of the different aspects in relation to waters. The River Basin Orsganizations (Confederaciones Hidrográficas) are public Institutions with legal personality, depending on the Ministry of Environment to administrative effects, but with total functional autonomy. Their functions include, between others, the elaboration of the Basin Hydrologic Plans and the administration and control of the public hydraulic waters. They are the supervisory authority, having the competence to give the discharge permits and to verify their fulfilment, including the power to punish. They also have the power to grant the corresponding authorisations and concessions to use public waters, controlling the observance of the conditions they establish.

The Spanish Geological and Mining Institute (IGME), is an Institution dependent of the Ministry of Education, and its function is to make recommendations and develop research plans to improve the knowledge and to protect the underground aquifers. It will also give technical advice to public Administration in relation to groundwater. This organism also plays a role as consultative entity of the Administration of the State in relation to mines and spoil heaps and, consequently, in mine waters.

An organism of the General Administration of the State involved in the vigilance and control of the environment is the SEPRONA, which is a special group of the Civil Guard, depending on the Ministry of Interior.

In the Autonomous Communities Administration, the corresponding Consejería is the Institution in charge of the water issues, which at regional level is the equivalent to a national Ministry. It can include one or more Directorate General in charge of different aspects of water issues.

3. Institutional setup and current legislation applied to mine waters

In relation to concessions for using waters and permits for discharging polluted waters, the Water Law states: "any activity that can promote the pollution or degradation of the public waters and, in particular, the discharge of water or residual products that can pollute the continental waters require an administrative authorization". So to discharge mine waters it is obliged to get a discharged permit. In this permit it is explained the necessary treatment before discharging (treatment that must be carried out by the mining company), as well as the limits to the effluent composition and the amount that must be paid as discharge tax. The discharge tax depends on the contaminating charge of the discharged water. Not getting this discharge permit prevents to obtain the administrative authorization for carrying out the activities. To discharge without authorization or not fulfilling the established requirements implies sanctions and it can lead to the cease of the activity. The competent administrative authority is the corresponding Water Board or the equivalent organism in the Autonomous Community in case it has the competence and if the considered basin is an intra-communitary basin.

Basins of the main national rivers are controlled by the respective River Basin Organizations. They wield the public administration of water in the case of inter-communitary basins. In the case of intra-communitary basins some Autonomous Communities have their own hydraulic organisms, as they have the transferred competences in this matter. In the case of a contaminating discharge is produced, the River basin Organizations have the power for penalties. But also the autonomic environmental authorities have powers to punish if the aquatic fauna has been damaged, as they have the competence for this matter. In case of discharges to the coastal domain (seas, estuaries), the competences have being transferred to the Autonomous Communities. In this case should be considered the Coasts Law (Law 22/1988) and the Regulation that develops this law, the Royal

Act 258/1989, that establishes the general rules about discharges of dangerous substances from land to sea, and the specific laws that the considered Autonomous Community could have develop in relation with this. The discharges are subjected to the necessary authorisation given by the competent administration authority. In this case, the competent authority is the autonomic authority.

The River Basin Organizations or its autonomic equivalent, are the competent authorities that give the concessions for using waters in the mining process. The concession will establish the conditions for this use of waters. Every concession will be given according to the Basin Hydrologic Plan, as it is stated in the Water Law. So the concession will consider the preference order for use established in the corresponding Hydrologic Plan.

The basic law 7/1985 that regulates the local governments attributes to municipalities the competence to protect the environment. The concrete powers executed by municipalities in relation to mines are those of giving the necessary municipal authorisations and permits: authorisation of classified activities; licence of classified activities according to the Regulation of annoying, unhealthy, harmful and dangerous activities (Royal Act 2414/1961).

The expression “mine waters” does not appear such as, in the current Spanish legislation, and in consequence there is not a specific legislation for mine waters in Spain, neither at national nor at regional level. The laws that can be applied are the Mining Law (Law 22/1973) and later modifications, and the revised Waters Law (Royal Act 1/2001), that governs the problems related to water pollution and protection, and that regulates the discharges of polluted waters to surface watercourses. The Mining Law 22/1973 and the Royal Act 2857/1978 for mining activities that develop the Mining Law, establish the authority of the Administration to set the conditions to protect the environment in operations related to the mining industry. The Mining Law represented at the time it was approved an important step forward in the environmental aspect, but thirty years later, a new mining law seems to be necessary taking into consideration the different points that this law regulates, including environmental aspects related to mine water.

In addition to the Mining Law, there is abundant legislation related to the environmental issues applicable to the mining industry that must be taken into account. However, not all the environmental aspects of the mining cycle are properly covered by the current legislation, and not all the legislation that applies to mining was made with mines in mind. Then, it would be desirable to put order in this matter, producing an adequate body of legislation that regulates the whole mining cycle and all the related

aspects. In this sense, efforts must be made in order to diminish the quantity of legislation making it more specific and appropriate to mine waters. A part of the before mentioned legislation, at national level, is not specific for mining, but it affects mining activities in relation to the environment. The most important of them are:

- Royal Act 2994/1982, about restoration of the natural space affected by mining activities.
- Royal Act 1116/1984, about restoration of the natural space affected by coal open pits and rational exploitation of these energetic resources.
- Waste Law 10/1998.
- Coasts Law 22/1988, and the Regulation that develops this law.
- Royal Act 258/1989, which establishes the general norms about discharges of dangerous substances from land to sea.
- Royal Act 9/2000, that modifies the Royal Act 1302/1986 about Environmental Impact Evaluation; and the Royal Act 1131/1998 that approves the corresponding regulation.

Each one of the Autonomous Communities has the potential power to establish additional rules according to their competences; this is the case, for example, of the additional laws about Environmental Impact Evaluation that exist in some Autonomous Communities. Other legislation not related to the environment but also affecting mining is the Regulation 2414/1961, related to annoying, unhealthy, harmful and dangerous activities, and the Law 6/1998l, about the regime of soils and valuations.

In the case of abandoned mines from which polluted water discharge is produced, if they have a known owner, he will be the responsible for remedying the pollution or he will have to face the corresponding penalty, according to the water legislation. The responsible of the possible damages produced by an abandoned mine is its owner, and he has to be responsible for those possible damages to the environment. In the case the current legislation could not be applied, as this legislation did not exist at the time the mine was running, the laws that should be taking into consideration are the Civil and the Penal Code. In the case there is not a known responsible for the polluted mine waters, as the mining company has disappeared, the Administration is taking care of the remediation actions.

4. European policy interactions and impacts

Mine water pollution differs sufficiently from other forms of industrial pollution and it is necessary to have in mind that the impacts of mining in

water resources occur not only at the different stages of the life cycle of the mine but after its closure. Then, specific regulatory requirements quite distinct from those applicable to most other industrial processes seem to be necessary. Currently, at a European level there is an absence of specific legislation regarding mine waters (Kroll et al. 2002). As mine wastes are generators of mine waters and an important source of water pollution (spoil heaps and tailing ponds leachates), in consequence the current EU legislation that affect mine wastes in the same way it affects too mine water.

The draft for a Directive on the management of wastes from the extractive industries in now being under consideration (EC 2003a), and one of the aims of this Directive is the prevention of water pollution, through the evaluation and prevention of leachates generation, the collecting and treating of polluted water and the disposal into water bodies subject to WFD. In the same way is now being under consideration too the Draft Reference Document on Best Available Techniques (BAT) for management of tailings and waste rocks in mining activities (EC 2003b).

As member of the EU, Spain at the same time that takes part in the development of new EU policies is obliged to implement the existing and future policies to the national legislation. The Water Framework Directive has been implemented in the Spanish legislation at the end of the year 2003. This will bring some modifications in the Spanish water legislation, and also in the planning and management of waters, anyway a restructuring in the current administrative institutions in charge of water issues. It is clear that the experience of the River Basin Organizations in the application of the water management on a catchment scale supposes an advantage in the Spanish case. But it will be necessary to solve the important problems of competences between the different administrations, and to provide the necessary technical and personal resources to face the multiple requirements of the Directive.

The Water Framework Directive presents a breakthrough in European water policy, combining approaches of emission controls tackling pollution at the sources, and water quality standards to be achieved for all water bodies, plus phasing out particularly hazardous substances. It introduces integrated water management on the catchment scale and requires the production and public consultation of statutory River Basin District Management Plans, encompassing water quality, quantity and ecological issues, and looking at the protection of water as a strategic and limited resource. Then, the application of the WFD will produce the modification of the Basin Hydrologic Plans, but it also will affect to the basins that are shared with Portugal. The objectives fixed by the Directive

are extended to all continental and coastal waters, including the mining-medicinal waters, this suppose an important change with respect to the current Spanish Water Law. The Water Framework Directive demands the establishment of control networks and vigilance programs. The current networks and programs in Spain are clearly insufficient to fulfil what the Directive requires.

The European Water Framework Directive states that future river basin management in the member states of the EU should be undertaken with relevant stakeholders participating in the setting up and implementation of plans. Specifically, the guidance document on public participation under the WFD identifies three groups: the general public, stakeholders and competent authorities (EC 2003c).

5. Conclusions

Mining activities still have many negative impacts on the environment and as regards mine water pollution; the general consensus is that the current legal regimes at regional, national and European scales do not provide a sufficient level of environmental protection. Abandoned mines produce the most important problems of environmental affection caused by mine waters. To solve this seems to be difficult, if there is not known responsible the Administration must take charge of it providing the necessary funds, but the great amounts of required funds to carry out that make this task very difficult.

The Water Framework Directive provides a unified criterion for the water management in Europe and it is the most relevant piece of legislation for the regulation of water impacts, including pollution by mine waters.

The questioning of effectiveness and applicability of current legislation has led the EC to put forward proposals legislation to adequately deal with environmental and social consequences of mining. Among those proposals is a draft for a directive on waste from the extractive industry that includes provisions for mine water pollution.

In order to guarantee an adequate protection and control of waters some failures exist, as the inadequate networks and programs of water quality control, the insufficient attention pay to groundwater, the lack of coordination and the conflict of competences. This is probably due to the lack of enough human and financial resources. The Directive implementation must lead to the quantitative and qualitative extension of the control networks, and also the unification in the

management of them. In relation to mine waters, an effective pollution control needs a dense monitoring network at the scale of the local subcatchment of the mine site, where the pollution source, before the dilution of mine waters into the superficial watercourses. The participation of local communities, potential users of water bodies, can be considered to find solutions to the pollution problems. Then, an adequate implementation of the Water Framework Directive could help to solve these problems, if it counts with the appropriate resources. Some recommendations for mine water management in Spain are summarized in table 2.

Table 2. Recommendations for mine water management

Recommended action	Priority
Introduce specifically the concept of "mine water" in water policy and legislation	High
Implement a new Mining Law, which leads to an adequate regulation of mine waters.	Very High
Implementation of coordination mechanisms among different administrations with competences in mining issues.	Very High
Assessing human and financial results to the implementation of the Water Framework Directive.	High
Assessing budget to mitigate environmental problems related to improperly closed old mining works and abandoned mine wastes.	Very High
Dissemination of information about mine water issues and implication in monitoring and control of NGOs and local public.	High

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